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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,654	02/07/2001	Jochen Franzen	B0004/7080	5484

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BOSTON, MA 02109

EXAMINER

EL SHAMMAA, MARY A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,654

Applicant(s)

FRANZEN, JOCHEN

Examiner

Mary A. El-Shammaa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims

Claims 1-9 are amended necessitating new grounds of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Bateman et al. (6,229,142).

Regarding claims 1 and 8, Bateman et al. discloses in Fig. 1 a time-of-flight mass spectrometer with injection of a narrowly defined ion beam having ions which fly in a direction

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parallel to an x-axis (11), the spectrometer comprising a pulser (22) which accelerates, in pulses, a segment of the ion beam with a gridless slit diaphragm (21) that extends parallel to the x-axis, the acceleration being parallel to a y-axis (25) that is perpendicular to the x-axis so that the accelerated ions form a band-shaped ion beam (23); at least one electrical reflector (26) that receives the ion beam from the pulser (22) and accelerates it with a gridless slit diaphragm that extends in the x-direction, the reflector acceleration being in a direction opposite to the acceleration provided by the pulser, wherein the reflectors form a zig-zag beam; and a detector (27) that receives the reflected ion beam from the reflector and provides temporally resolved measurement of the ion beam, wherein the gridless slit diaphragms of the pulser and the reflector provide focusing of the ion beam on the detector in a direction parallel to a z-axis that is perpendicular to both the x-axis and the y-axis (Col. 7, Line 47 through Col. 8, Line 42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman et al. in view of Vestal (5,160,840).

Regarding claims 2 and 3, Bateman et al. does not disclose the spectrometer including at least one two-stage reflector, one short deceleration field, one reflection field, and at least one cylindrical lens that contribute to the ion beam focusing. Vestal discloses a time-of-flight mass

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spectrometer that does include a two-stage reflector, a short deceleration field, a reflection field, and at least one cylindrical lens to contribute to the focusing of the ion beam (Col. 12, Lines 17-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the focusing elements of Vestal because Vestal teaches that the inclusion of these elements results in a spectrometer that has high transmission and high resolution.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman et al. in view of Franzen (5,969,348).

Bateman et al. does not disclose the use of an Einzel lens. Franzen discloses the use of at least one cylindrical Einzel lens (Col. 9, Lines 4-12; Col. 10, Lines 29-55; Col. 11, Lines 42-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the Einzel lens taught by Franzen because Franzen teaches that the use of an Einzel lens with gridless diaphragms causes parallelism of the ion stream impinging on the detector.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman et al. in view of Li et al. (5,614,711).

Bateman et al. does not disclose a pulser having two slit diaphragm electrodes and one repeller electrode, of which only the repeller electrode, the first slit diaphragm or both together are used for pulsing the ions located between the repeller electrode and the first slit diaphragm by means of voltage changes, while there is constant potential at the second slit diaphragm. Li et al. discloses a pulser having two slit diaphragm electrodes and one repeller electrode, of which only the repeller electrode, the first slit diaphragm or both together are used for pulsing the ions located between the repeller electrode and the first slit diaphragm by means of voltage changes,

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while there is constant potential at the second slit diaphragm (Col. 16, Lines 15-49). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include two slit diaphragm electrodes and one repeller electrode in the pulser because Li et al. teaches that the acceleration of the ion packets through the second slit diaphragm electrode accelerates the ions with their final kinetic energy.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman et al. in view of Koster (5,734,161).

Bateman et al. does not disclose the spectrometer comprising an electrical capacitor that generates a capacitor field parallel to the x-axis and that deflects the band shaped ion beam in a direction parallel to the y-axis after it leaves the pulser. Koster discloses a spectrometer comprising an electrical capacitor that generates a capacitor field parallel to the x-axis and that deflects the band shaped ion beam in a direction parallel to the y-axis after it leaves the pulser (Col. 3, Lines 38-49). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the capacitor taught by Koster because the capacitor allows for deflection of the ion beam.

Allowable Subject Matter

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703.872.9318 for regular communications and 703.872.9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

mae

May 27, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800